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INTERNATIONAL COURSE ON COMPREHENSIVE PLANNING

SEPTEMBER 14, 1960—JANUARY 13, 1961

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INSTITUTE OF SOCIAL STUDIES,
27, MOLENSTRAAT, THE HAGUE, NETHERLANDS

GENERAL INFORMATION ABOUT THE COURSE

Everywhere in the contemporary world, the complexity of community patterns tends to evoke an urge towards *comprehensive planning*. There is an increasing awareness that restricted planning efforts, such as facet planning or functional planning are bound to produce insufficient results, if not adverse consequences. As a result of this awareness, there is a growing need for planners who combine a penetrating insight in their own planning specialism with an adequate grasp of the wider complex of various planning activities upon which technical, social and economic development rests.

Such a wider view, aimed at a comprehensive planning approach, is required from the decision makers and the planners at top level.

Under present conditions an interdisciplinary approach in planning is more essential than ever before.

The four month course which the Institute of Social Studies intends to organize annually, the first starting in September 1960, aims at bringing together planners from various disciplines by whom, or for whom, the need is felt that they should broaden their view about planning activities in fields other than their own.

The course aims at a better understanding, appreciation and respect for the approach and the contributions of the other planning disciplines. The participants should learn to see clearly their own contributions as being *one* facet *only* of a more complex and comprehensive planning programme.

The course is not meant to train comprehensive planners, nor will it train planners in one planning discipline only. It will start from the premise that the participants are thoroughly trained and possess a wide experience in their own planning field. It is not meant for newly graduated planners, but rather for those planners who are already in, or near, a responsible planning function.

Admission is therefore open to trained and experienced planners of any planning specialism, who desire to broaden their view of planning as a many-sided complex. Each participant will be expected to contribute a thorough knowledge of, as well as experience in, his own special field of planning, to the joint multi-disciplinary effort that will be made by participants and faculty members.

In admitting participants, a balance will be kept, both as regards specialisms and as regards cultural and national backgrounds. Also, various kinds of experience with respect to technical, social and economic development problems will have to be represented. The optimum number of participants has been set at 15; the absolute maximum is 20.

The first course is scheduled to begin September 14, 1960 and end on January 13, 1961.

LANGUAGE

All lectures, discussions, etc. are conducted in English.

Participants should have a perfect command, both oral and written, of this language.

REQUIREMENTS FOR ADMISSION

The requirements for admission to the Comprehensive Planning Course are:

a. a degree in the social sciences, planning, engineering, architecture, agriculture or other discipline serving as a basis for planning activities;
b. considerable experience in one of the planning fields in a responsible post.

TUITION FEE

The tuition fee for the complete course is 400 Dutch Guilders.

The tuition fee should be paid in full upon arrival.

The registration fee, to be paid upon registration by all participants is 35 Dutch Guilders.

LIVING FEES FOR "HET OUDE HOF", HALL OF RESIDENCE

The charges for living expenses in "Het Oude Hof", the Institute's Hall of Residence, are 54 Dutch Guilders per week for single rooms and 43 Dutch Guilders per week for sharing a double room. These charges cover accommodation, full board, laundry and central heating.

For further information about the course please apply to:

the Rector of the Institute of Social Studies,
27 Molenstraat,
The Hague (The Netherlands)

PROVISIONAL PROGRAMME

1. General considerations about development planning, execution and operation;
2. Physical elements as a basis for planning;
3. The need for a comprehensive planning approach;
4. The contribution of the various planning disciplines:
    - Public administration (Government)
    - Physical planning
    - Economic planning
    - Sociology
    - Engineering
    - Agriculture
    - Statistics
    - Geography
    - Demography
    - Planning legislation

    Their activities, methods, aims, requirements, limitations, deficiencies, expectations, etc.
5. Current problems and their need for comprehensive planning.
    - Improvement of communications
    - Modernization of rural activities
    - Land reform
    - Changes in the pattern of settlements
    - Growing cities and declining settlements
    - Metropolitan areas
    - The Megalopolis
    - The inadequacy of the existing administrative division.
6. Examples of execution (Town planning, regional planning, national planning, international planning).
7. Case projects.

All lectures, seminars and sessions will be focused on one or two case projects, probably in Puerto Rico and in the Netherlands.

The course will deal with conditions in the so-called underdeveloped countries as well as with those in so-called advanced countries.

This pamphlet is subject to alterations without previous notice.

HIGHER EDUCATION AND RESEARCH IN THE NETHERLANDS

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H. A. KAMERLINGH ONNES
AND LOW TEMPERATURE PHYSICS

Physicists are greatly interested nowadays in the behaviour of matter at very low temperatures. When a substance is cooled to almost absolute zero – that is 273.2° C. below the freezing point of water – all sorts of symptoms occur which do not manifest themselves at normal temperatures. This is a result of the fact that molecular heat movement is much slighter at low temperatures than at normal temperatures. What is called the temperature of a substance is, in fact, nothing but the expression of the speed with which the molecules of this substance move, or, to be more exact, of the kinetic energy of the molecules. In a gas and in a liquid the movement of the molecules is more or less free; in a solid this movement takes place in the form of vibrations round certain states of equilibrium. At low temperatures this heat movement is therefore slighter. According to the concepts of classical physics, molecular movements must cease entirely at the absolute zero point. The quantum theory of the twentieth century has shown, however, that this is not the case, but that at this point a certain zero-point energy still exists, independent of the temperature. At normal temperatures this zero-point energy remains unperceived. It is precisely at very low temperatures, however, that it plays the main role. Only at extremely low temperatures is matter really seen in its pure form, and then the quantum character of energy comes into play. There is another magnitude which disappears completely at the absolute zero point; this is entropy. This means that matter attains the highest degree of order at the absolute zero point. The deeper nature of the substance therefore only becomes known to us at temperatures lying close to absolute zero point.

It was the Dutch physicist H. A. Kamerlingh Onnes (1853—1926) who, at an early stage in the investigations and with ingenious vision, realized the importance of examining matter at low temperatures. James Dewar in London had occupied himself for a short period with these temperatures, but after him Kamerling Onnes in Leyden was the only person to develop this special field of physical research, and it was not until after his death that parallel centres for low temperature physics were established in other countries also. In order to see his pioneering work in its proper perspective it should be placed against the background of the physical sciences of his time.

The idea that the behaviour of gases, liquids and solids was to be explained from the molecular structure of matter was developed in the second half of the last century. This was particularly the work of Clausius Maxwell, Van der Waals and Boltzmann. By virtue of the molecular theory, Van der Waals succeeded in demonstrating that no essential difference exists between gases and liquids. He indicated that the behaviour of these two phases of matter, as expressed in pressure, volume and temperature, is ruled by one single equation, his "equation of state". This equation made it clear that any gas can be compressed to a liquid state provided it is first cooled below a temperature specific to that gas, namely, the critical temperature. When Van der Waals published his sensational theory in 1873, most of the then known gases had already been liquified by compression, but in the case of six gases attempts to condense them to liquid by means of compression had been of no avail. These were: hydrogen, oxygen, nitrogen, nitrogen monoxide, carbon monoxide and methane (the rare gases – helium, neon, argon, krypton, xenon – had not yet been discovered). It was thought that these gases could not be liquified and for this reason they were called permanent gases. It followed from Van der Waal's equation of state that the critical temperature of these gases was much lower than that of the other gases. Thus, to enable the permanent gases to be examined, methods first had to be developed to produce low temperatures.

It was at this time, in 1882, that Kamerlingh Onnes, deeply impressed by the theories of this compatriot, Van der Waals, was appointed professor of experimental physics at Leyden. The equipment of the existing university laboratory was fairly primitive. Kamerlingh Onnes – who was then only 29 years old – decided to concentrate his activities on the experimental study of gases and liquids in connection with the molecular theories and the mechanical heat theory. He established a cryogenic laboratory in order to obtain low temperatures and to liquify "permanent" gases. In 1892 he had made so much progress that he was able to liquify oxygen in fairly large quantities – after Cailletet and Pictet had previously succeeded in doing so on a smaller scale. Around 1900 Kamerlingh Onnes had progressed so far that he was able to carry out physical measurements at all temperatures down to approximately —200° C., which made it possible for him to embark on the systematic study of the equation of state and further theories of Van der Waals.

It is impossible within the compass of this article to give a full idea of the huge number of problems that faced Kamerlingh Onnes during his researches. An as yet untrodden field lay before him, for which completely new measuring instruments had to be invented and new working methods developed. He reported on all this pioneering work in the impressive series of "Communications from the Physical Laboratory at the University of Leyden", which he published from 1884 on. By 1900 his laboratory had already become famous.

Meanwhile, in 1898, James Dewar had liquified hydrogen for the first time in the Royal Institution at London. Kamerlingh Onnes only succeeded in doing this in 1906, after he had acquired new suction and pressure pumps. He was then in a position to carry out researches down to —259° C., the lowest temperature that can be obtained with liquid hydrogen by letting it boil under reduced pressure. In order to reach an even lower temperature, helium, discovered in 1898, would have to be liquified – the only gas with which attempts in this direction had failed. Dewar's efforts were unsuccessful. When Kamerlingh Onnes had got his hydrogen installation ready in 1906, he systematically attempted to reduce helium to a liquid state. He was guided in this by the law of corresponding states, discovered by Van der Waals, which had also proved of great service to him in the liquefaction of hydrogen.

Thanks to the help of an American factory, helium-containing minerals were placed at his disposal, from which he was able to prepare a quantity of 300 litres of helium (not yet a commercial product). For his attempt at liquefaction to stand a chance, Kamerlingh Onnes first had to examine the thermal properties of helium gas at low temperatures, about which no data were available at the time. After two years of preparation, everything was in readiness for the first attempt. Kamerlingh Onnes was a particularly systematic worker, always preparing for every experiment carefully, down to the last detail. Very early on the morning of July 10th, 1908, he commenced his helium experiment. With the aid of liquid hydrogen, the helium gas was cooled as far as possible and compressed. By letting it then expand, the gas cooled off further. After this process had been repeated several times, the gas cooled off further still, until finally, following a day of the utmost exertion, the liquid state was attained that same evening. In the "Communications" mentioned above, Kamerlingh Onnes reports extensively on the famous experiment, giving an hour-to-hour detailed description of the measurements taken and the course of the symptoms displayed. In the Leyden laboratory now named after Kamerling Onnes, a memorial stone has been placed on the spot where helium was first liquified to commemorate this fact, of such great importance to modern physics. The event was commemorated once again at Leyden, fifty years later – in June 1958, by the holding of a large international congress on low temperature physics.

It had now been established that the last remaining gas could also be condensed to a liquid state. More important still was the disclosure of a new temperature area. By placing liquid helium in an open vessel, it starts to boil under atmospheric pressure at a temperature of only 4 degrees above the absolute zero point. But by placing liquid helium in a closed vessel and then very quickly pumping away the helium vapour that is formed above it, a temperature of only one degree above zero point can be obtained. That this was indeed a considerable achievement by Kamerlingh Onnes is proved by the fact that attempts to liquify helium in another laboratory (Toronto) did not meet with success until fifteen years later. In the meantime, it was being used weekly in Leyden for research at extremely low temperatures and it was not long before scientists from other countries came to the Leyden laboratory to carry out investigations on special subjects there themselves. It had gradually become apparent, in fact, that not only thermal phenomena, but also optical, electric and magnetic phenomena display curious aspects at extremely low temperatures. Of the many interesting results attained in these fields, there is only room to mention Kamerlingh Onnes's famous discovery of superconductivity in 1911. The resistance offered by a metal to the passage of an electric current diminishes with the temperature. This fact is very important, firstly for our insight into the nature of the conduction of electric currents, and secondly for temperature measurements. Low temperatures can be excellently determined precisely from their metal's electric resistance. Kamerlingh Onnes, therefore, investigated the resistance of different metals at very low temperatures.

His first studies on this subject led him to believe that in the case of completely pure metals the resistance would disappear entirely. When he went into this more thoroughly with mercury – a metal which lends itself fairly easily to complete purification – it appeared that at a temperature of 4.2 degrees above absolute zero the resistance did not gradually diminish further, but suddenly disappeared altogether. Subsequently this also proved to be the case with other very pure metals, although the temperature at which it occurs differs from metal to metal. This is called superconductivity. When Kamerlingh Onnes generated a current in a closed ring of tin by means of magnetic induction, the metal meanwhile being kept at a very low temperature, this current proved to run on unimpaired for hours. Superconductivity to-day is still the subject of penetrating studies by physicists, to whom it still represents a problem not yet satisfactorily solved.

It is particularly to the liquefaction of helium and the discovery of superconductivity that Kamerlingh Onnes owes his great fame as a physicist. In 1913 he was awarded the Nobel Prize for his extensive scientific work, and both before and after this award he received many foreign distinctions. In 1924 he resigned as professor and as director of his laboratory, but went on with his scientific activities until shortly before his death, in 1926. His successors Keesom and De Haas have successfully continued the research. Helium was first obtained in a solid state in Leyden; the two states in which fluid helium occurs, called helium-I and helium-II, were discovered in the Kamerlingh Onnes laboratory; it was there too that via adiabatic demagnetization temperatures were attained down to 0.001 degree above the absolute zero point. But the laboratory no longer stands alone, important laboratories for low temperature physics having now been established in other countries, too. Nevertheless, under its present director, Prof. Dr. C. J. Gorter, the Kamerlingh Onnes laboratory at Leyden still occupies a leading position in low temperature research.

A. N. BORGHOUTS *

(Translation by Flora H. van Os—Gammon).

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THE NEW TECHNOLOGICAL COURSES AT THE UNIVERSITY OF GRONINGEN

The question whether higher education in the technical sciences should be given at the universities or at technological universities has been raised in various countries and been replied to, now in the affirmative, now in the negative. The solution arrived at at Groningen, a new departure for the Netherlands, appears to us to be of sufficient interest to our readers abroad to warrant our printing the following observations on the subject by Professor Van de Vooren, professor of applied mathematics in the University of Groningen. His article originally appeared in "Universiteit en Hogeschool" (University and University College), a Dutch university journal.

Attention has also been given to this matter in "Spreading Higher Education", a report published last October by the Ministry of Education, Arts and Sciences. The sub-committee on curricula has recommended the spread of higher education in the applied natural sciences primarily by adding the subjects concerned to the curricula at existing universities; while it also recommended that higher education in pure science should be extended by including the appropriate subjects in the curricula at existing technological universities.

Regarding the experiment at Groningen University, the concluding report suggests that the university should be empowered to grant the degree of engineer to students having completed their study in applied mathematics, physics and chemistry, as soon as the study concerned has attained the level of the engineering courses at the technological universities.

Rather more than a year ago, on the suggestion of the Mathematics and Natural Science Faculty, the Board of Governors of Groningen University submitted proposals to the Minister of Education for the establishment of three new branches of study at their university. The minister having conferred his approval on these proposals, it will now be possible for students at Groningen to acquire the degree of doctor in applied mathematics, technical physics and technical chemistry.

The aim of these branches of study is to educate students for jobs in industry. The courses are therefore comparable to those for the engineer's title in mathematics and physics at the Institute of Technology (or Technological University) at Delft and to that for chemical engineer at both Institutes of Technology, at Delft and at

Eindhoven. This is the first time that branches of technological education have been made part of the curricula at an ordinary Dutch university. In the United States, England, France, Italy and Belgium it has been possible to study the technical sciences at a university for some time now, and it cannot be denied that there are great advantages in training engineers at such places of learning. These advantages will be felt on both sides: future engineers will benefit, since by contact with students studying entirely different subjects they will enjoy a broader cultural education than would otherwise be the case, despite the encouragement the universities have given to "general studies", while the other students, especially those working in the mathematics and natural science faculties, will benefit by being brought into contact with, and stimulated by, technics, a cultural factor in the 20th century which can no longer be ignored.

Education in technical science is impossible without a reasonable knowledge of pure science subjects; but it is equally true that contact with the applied sciences can have a fruitful effect on the study of the pure sciences, without which contact the latter run a grave risk of becoming sterile.

These considerations make it a matter of deep regret that in the 19th and early 20th centuries the Netherlands universities should not have seized the chance to provide for the study of technical science in technical science faculties. Voices have, to be sure, been raised, warning against the dangers of this trend, including that of the late Professor H. R. Kruyt in his brochure, "Hoge School en Maatschappij" (University College and Society), yet little heed has been paid to them. One of the main reasons for this has been the university's retirement into its ivory tower, its refusal to consider rubbing shoulders with the applied sciences, which has resulted in a widening gulf between the university and society. A situation which has evolved gradually over the years cannot, of course, be suddenly reversed; this would, indeed, be highly inadvisable, in view of the high level of education that has been attained at the Institute of Technology at Delft. Nevertheless we are faced with the question whether we should continue to set up new technological and ordinary universities or whether it would not be preferable to attempt to forge closer links between university and technical training. If there is a need for more "ordinary" university education, why not meet this need in a town such as Eindhoven? And since there is practically general agreement that greater facilities for advanced technical education should be provided, why not meet this need by instituting technical faculties at Groningen and possibly at other existing universities? There can be no doubt that the expansion of existing institutions of higher education would be cheaper than establishing new seats of learning. It would, moreover, yield speedier results, since, as far as teaching staff, equipment and buildings are concerned, it would be merely a question of building on what already exists, while some of the existing body of students will find themselves more attracted to the new branches of study and will therefore be able to complete their study comparatively quickly.

In itself such a development would not be something entirely new; in fact, it has already been witnessed in the economic sciences. It was only after a separate School of Economics had been set up in Rotterdam that the universities of Amsterdam and Groningen founded their own faculties of economics.

Much is being written at the moment – as a reaction to the drawbacks encountered with the one-sided technical training of the engineer – about the desirability of providing this technical training with a basis in general courses covering the whole field of the humanities, the exact and the social sciences. The facilities for providing general education of this kind are available particularly at the university, where lectures on psychology, sociology, economy, law, philosophy and so on could be included in the programme of study without any difficulty. The level of teaching in these sciences too, would be higher at the university than at an Institute of Technology, where none of the instructors have enjoyed wide training in these subjects. It was these considerations which formed the background to Groningen's proposal for the institution of final "doctoraal" examinations * in applied mathematics, technical physics and technical chemistry at that university. In order to be admitted to these examinations, it will be necessary to have passed one of the normal intermediate ("candidaats") examinations, the same, that is, which lead to the existing examinations for the doctor's title with mathematics, physics of chemistry as main subject. For the student this brings with it the great advantage of having to make the choice between pure science or applied science only at a later stage in his study, so that this choice can be determined by the ability and interest he has shown during his preliminary studies. This means that those who later choose the "engineers" branch, will also have first obtained a fairly thorough grounding in fundamental science. It should not be forgotten, however, that as long as there is no technological faculty at Groningen, the prime aim will be to train engineers for research work. The requirements at the intermediate examination will be different, in part, for students in any eventual technological faculty, which could also devote attention to training engineers for industry.

The period of study required for the intermediate examinations mentioned will be from 2½ to 3 years, while the further study for the final examination will last for a similar period. Like the present "doctoraal" examinations, the new technological examinations qualify the successful candidate to proceed to the doctor's title.

The programme of study leading up to the "doctoraal" examination in the applied sciences will differ fairly considerably from that in the pure sciences in that more room will be given to practical work and to independent research tasks. Periods of practical training in factory laboratories will be compulsory as part of the courses in technical physics and technical chemistry. In the case of applied mathematics, practical work in associated institutes during the summer vacation is strongly recommended but not compulsory.

The following can be said with regard to the separate courses of study:

a) Applied Mathematics

In general, the mathematical knowledge which the candidate will be excepted to acquire during his advanced study will have to be attuned to and illustrated by physical and technical examples in particular. During the final year's work, the student will have to carry out a research project of his own as an introduction to the problems he will encounter later on in practice. He will also be taught the use of electronic computers, i.e. an analogon and a digital computer.

During the first year in which this course in applied mathematics has been given, students have shown great interest in the new project. This is probably due in part to the attractiveness of the idea of being able to work on one's own problem instead of being restricted to book learning and having to show what knowledge one has gleaned from books at oral examinations.

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* Studies at Dutch universities are normally concluded by passing the "doctoraal" examination. Graduates obtain the status of "doctorandus" which is not considered to be a university degree. The new Higher Education Bill, which has recently been put before the States General, proposes to confer on these graduates the title of "magister" (Mg. placed before their names). The "doctorandus" is entitled to proceed to the degree of doctor by writing and defending a thesis.

b) *Technical Physics*

Part of the post-intermediate training of the technical physicists will have to do with a basic knowledge of technical physics and will therefore comprise such subjects as atomic energy technics, knowledge of materials, construction of instruments, measuring techniques, heat theory, flow theory, etc. Atomic energy technics include such subjects as reactor physics, reactor technology, electronics, the technique of nuclear physical accelerators, etc. It need hardly be said that atomic energy technics will be an especially important subject (if it is not already) under the heading of technical physics.

c) *Technical Chemistry*

Technical chemistry opens up opportunities in many different directions. In the agricultural field it comprises the development of artificial fertilizers and of chemical pesticides on the one hand and the chemical processing of agricultural produce on the other; in the field of textiles, the improvement of the properties of natural fibres and the development of synthetic fibres; in the field of plastics, the development of new materials and the study of their characteristics and applications; in the field of medicine, the development of new medicines, such as synthetic drugs, antibiotica, hormones etc.; in the field of the coal and oil industry, the continual improvement of the processes employed, and the extension of the uses of these products as raw material for the chemical industry in all its branches.

Students having received training in the applied sciences of this nature will have learned to work together with their colleagues in the pure sciences. In this way the university also evolves into a training ground for group work, so indispensable to modern scientific research. The programmes of study themselves have been designed in such a way that a large number of jobs in industry or at scientific institutions specially concerned with research work will lie open to those having completed their course with success.

A. I. VAN DE VOOREN *

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SELECTED STUDIES ON INDONESIA BY DUTCH SCHOLARS

There is a long tradition of Indonesian studies in the Netherlands, and until recent years a large share of all research on the area was conducted by Dutch, or Dutch-trained, scholars. In consequence, most of the many works which have been published on Indonesia, including almost all the standard works, are available only in Dutch. In the prewar period this was not felt to be a great disadvantage, for Indonesian studies were considered more or less a private domain of Dutch scholarship, a domain in which there was but little interest abroad.

Since World War Two, however, the dynamic changes taking place in what used to be the Netherlands East Indies have served to arouse the interest of the world at large in that important area, and new centres of Indonesian studies have developed, particularly at universities in the United States and various countries of the Commonwealth. A major problem faced by these new centres has been the shortage of material available on Indonesia in languages other than Dutch.

In order to alleviate the situation, a committee was formed in the Netherlands in 1948 for the purpose of editing in English translation a series of works by Dutch scholars considered of lasting importance in such fields of Indonesian studies as history and sociology.

From the outset this committee has had as its chairman Dr. W. F. Wertheim, professor of the modern history and sociology of Southeast Asia at Amsterdam University. Other members include scholars on the staffs of the universities of Leyden and Amsterdam, the Rotterdam School of Economics, and the Royal Tropical Institute at Amsterdam. Former members are now teaching at universities in Malaya and Australia.

From the beginning the committee has received particular encouragement in its work from three sources: the Royal Tropical Institute, with which it has been affiliated as an advisory committee since 1950; the Netherlands Organization for the Advancement of Pure Research (ZWO), which year after year has granted funds to make possible the translating, editing, and publishing of the series; and the publishing house of W. van Hoeve, Ltd., which has brought out the various texts in volumes which are attractive both in design and price.

The first project undertaken by the committee was to edit works by two scholars who, in the years between the wars, had done pioneering work in the history and sociology of Indonesia: J. C. van Leur (1908—1942) and B. Schrieke (1890—1945). The collected writings of Dr. van Leur constituted the first volume to bear the name of the new series, 'Selected Studies on Indonesia by Dutch Scholars'. This volume was published in 1955, as was also Part I of a two-volume edition of selected writings by Professor Schrieke, Part II appearing in 1957.

Common to both these scholars was the desire to apply sociological methods and concepts to Indonesian historical data and the belief (highly unorthodox in their day) that Indonesian history displays an essential unity. Another theme they shared – for Schrieke no more than a subsidiary one but for Van Leur almost the burden of all his work – was the advocacy of an approach to Indonesian studies based upon an Indonesia-centred rather than a Europe-centred view.

Upon the publication of Van Leur's and Schrieke's works, scholars abroad were almost unanimous in their acclaim of both the series and the individual books. The first two volumes went through several printings; more significant, all three have exerted an influence on subsequent scholarship, as a glance at the footnotes in many a recent study on Indonesia will demonstrate. After preparing these initial volumes the editorial committee turned to planning several books, each to contain a number of papers and essays by scholars centred around one general theme.

The first such book to appear was one on the sociology of the Indonesian town, published in 1958. In general it can be said that much more has been written on the Indonesion rural scene than on the towns. This volume, an attempt to redress the balance somewhat, contains four of the finest prewar studies of aspects of Indonesian urban life, together with a foreword discussing the further work on the subject.

Volume five in the series, which has just appeared, contains ten studies on various aspects of Balinese life by four distinguished scholars in the field, preceded by a long introductory essay written especially for the volume by Dr. J. L. Swellengrebel. The studies included have been selected and arranged in such a way that, read in conjunction with the introduction, they form a concise survey of Bali and Balinese studies.

The sixth volume, scheduled to appear late this year, is built around quite a different theme – the dualistic theory of economic development which, advocated by the late J. H. Boeke (1884—1956), is frequently believed to have provided the philosophy underlying Dutch economic policy in twentieth-century Indonesia. Actually that was far from being the case, and for half a century there has been lively discussion among Dutch economists pro and contra Professor Boeke's views. This volume will contain a selection of articles and passages, by Boeke and other scholars, propounding, studying, and challenging the theory and practice of economic dualism in its many aspects.

Also in preparation is a volume, planned for publication in 1961, containing various essays on Islam in Indonesia. There are a number of points of divergence between beliefs and practices in Indonesia and those in other parts of the Moslem world. Since fairly little is available on Indonesian Islam in languages other than Dutch, interest in this volume is anticipated from scholars of Islam in general as well as from students of Indonesian affairs.

The committee is also considering a number of other projects which may lead to publications at a later date; needless to say, in preparing its plans the committee maintains close contact with leading scholars abroad, in order to make certain that the volumes in the series meet the needs felt by the readers they are designed for. The committee hopes that in this way the series may make a contribution to the furtherance of international research on Indonesia and consequently of East-West understanding in general.

SELECTED STUDIES ON INDONESIA BY DUTCH SCHOLARS

All volumes published by W. van Hoeve, Ltd., The Hague, for the Royal Tropical Institute, Amsterdam, under grants from the Netherlands Organization for the Advancement of Pure Research (ZWO), The Hague.

1. J. C. van Leur, *Indonesian Trade and Society: Essays in Asian Social and Economic History* xxii + 465 pp. 1955. f 12,50.

2. B. Schrieke, *Indonesian Sociological Studies: Selected Writings, Part One.* x + 313 pp. 1955. f 9,50.
3. B. Schrieke, *Indonesian Sociological Studies: Selected Writings, Part Two: Ruler and Realm in Early Java.* xii + 491 pp. 1957. f 11,50.
4. *The Indonesian Town: Studies in Urban Sociology.* xxxvi + 379 pp. 1958. f 17,50.
5. *Bali: Studies in Life, Though, and Ritual.* Circa 450 pp. 1960. f 19,75.
6. *Indonesian Economics: The Concept of Dualism in Theory and Practice.* In preparation.

CHRONICLE

UNIVERSITY NEWS

The Spreading of Higher Education

Important work was done by commissions in the Netherlands during 1959 concerning measures on behalf of higher education and science. A number of impressive reports have been published on which interest will be focused in the coming months both in parliamentary and university circles.

In the foregoing issue of our bulletin (Vol. III, No. 4) a summary was given under the heading Research of the report on the *Development of Physics Research in the Netherlands,* published in December, 1959. We would now like to draw attention to the report on the *Spreading of Higher Education,* comprising the joint recommendations of two commissions, one on the "spreading of higher education" and the other on the "spreading of higher technological education", which report was submitted to the Minister of Education, Arts and Sciences on October 6, 1959.

The commissions have considered successively the *quantitative,* the *structural* and the *regional* aspects, to arrive at *Proposals for the establishment of new institutions of higher education.* In the space we have at our disposal here we can, of course, only spotlight a few of the salient points contained in the report.

As regards the *quantitative aspects* of the problem, the commissions took as their basis the report on *University Numerical Trends up to 1980,* issued in June 1959 by the Inter-University Contact Body's Commission on Statistics, generally referred to as the Dalmulder Commission after the name of its chairman.

The increase in the number of students is intimately connected with the development of secondary education and the interest shown by pupils leaving the secondary schools in higher education. In the coming years the number of children between the ages of 12 and 13 will rise sharply as a result of the higher birth rate after the war. Interest in higher education is increasing as a result of the rising standard of welfare and the urbanization of the countryside. It is also powerfully influenced by society's growing need for academically trained men and women, influenced, in its turn, by the increase in the population, greater welfare, urbanization, increasing production, complicated methods of production, the extension of social organizations, intensified activity by the government, the expansion of secondary education, etc. The growth of higher education itself and the expansion of scientific activity likewise call for larger numbers of academically trained persons.

The supply of first year students has been calculated on the basis of the number of pupils in their first year at the secondary school. By assuming a constant yield, the supply of graduates has been deduced from the number of first year students. The future demand for graduates has then been calculated from the estimated demand for university trained personnel, while, finally, the supply of and the demand for graduates have been compared.

According to these calculations, the total number of students will be between 60,000 and 66,000 about the year 1975. In order to achieve this level the most effective possible use will have to be made of the potential present in the country. In this case, by 1980 there will be no appreciable difference between the supply of and the demand for graduates, all branches of study being taken as a whole. The forecasts per branch of study, however, throw up appreciable differences between supply and demand. There will still be considerable shortages up to 1980, particularly in mechanical engineering, electro-technics, chemical technology and, though in lesser degree, in physical technology, hydraulic engineering and the science of road construction; in the remaining branches of study either equilibrium between the supply and the demand (e.g., for the natural sciences as a group, the social sciences as a group) or a surplus (medical science, excluding dentisty, the humanities). The compilers of the report lay emphasis on the desirability of a marked shift in the choice of the branch of study, away from the humanities in the direction of the natural sciences.

In the section on the *structural aspects* the reporters have devoted attention to the teaching capacity of existing universities, etc. The great effort that will be required of the Dutch people makes it necessary to put the available resources to the most efficient use possible. Two working parties of the Inter-University Contact Body have concerned themselves with calculating the best size for the different branches of study and the different universities to have.

A sub-committee has made an attempt to estimate the *optimal training capacity of a technological university*. It proceeded from the basis of three factors regarded as the determinants: a) the number of students one professor can tutor in their final study during their last year, it being borne in mind that he is charged with numerous other tasks as well, such as scientific research, lectures, practical work, examinations, preliminary oral examinations. The figure has been put at 6 to 7, 8 being an absolute maximum; b) the number of professors in the group responsible for one department with which a diploma is associated. In view of the requirements as regards general agreement, co-ordination, joint responsibility and the ability to arrive at decisions quickly, this number should not be too high. The optimal figure has been put at 12; 15 to 16 is put as the maximum; c) the number of courses given at a single technological university. There is a limit to this number too. New diplomas lead to a further splitting up of the subject matter, whereas the unity existing between the different fields of science and technics should be preserved. The optimum will be about 10 departments, the maximum 12.

On the basis of these figures the calculators have arrived at an optimal figure of 75 final year students per department and 750 for a technological university as a whole. 750 final year students corresponds with 1250 first year students, on the basis of which it is considered that 4,000 to 5,000 students would be the optimum, and 6,000 to 7,500 the absolute maximum.

The total capacity of the two existing technological universities is insufficient to absorb the anticipated number of students. The commission on the spreading of higher technological education considers the founding of two new institutions necessary, in which mechanical engineering, electrotechnics and chemical technology should in any case be represented. It may well be that after 1970 it will become necessary to found yet another, fifth, technological university. As regards the total capacity of the existing universities and schools of economics, the anticipated increase in the number of students should not entail any difficulty, if timely measures are taken to provide for the essential material and staff. Nevertheless, some restraint on the exceptionally rapid expansion of certain universities, e.g., the University of Amsterdam and the State University at Utrecht is highly desirable. Certain branches of study (e.g., dentistry) require special provisions to be made for them.

Attention has been paid to the "mass" character of teaching in the early years of study and to the problem of effective selection. The need for thorough study of this question is demonstrated by the frequency with which students break off their study before completion. The commissions agree with the suggestions made in university circles to the effect that selection should be encouraged by the institution of a propaedeutic trial year of study.

In many branches the period of study required is too long, due to a complex of factors which call for serious further examination. In addition to dealing with the shortening of the actual duration of the existing courses of study, the commissions have also devoted their attention to plans for introducing new, shorter courses ending in a bachelor's degree. There is, namely, a possibility that part of the country's intellectual potential will not be efficiently used owing to the lack of simpler and shorter courses. The University of Leyden's plan to introduce a bachelor degree course of general education and that of the Technological University at Eindhoven to institute a bachelor degree in the technical sciences are accordingly warmly welcomed.

A sub-committee on the programme of studies has concerned itself with *natural science and technological science under one roof*, to be effected, for example, by adding a "pre-intermediate" course (a faculty or department of mathematics and natural science) to the courses at the technological universities and a technological sciences faculty to the existing faculties at the ordinary universities. *Independent* pre-intermediate courses should, however, only be instituted in those cases where regional needs weigh more than the obvious pedagogic drawbacks.

The commissions are of the opinion that limits should be set to the total number of new institutions to be established. The spread of education in applied mathematics, technical physics and chemical technology should be effectuated primarily by including courses in these subjects in the curricula of existing ordinary universities. Conversely, wider facilities for higher education in mathematics, physics and chemistry should be provided primarily by courses in these subjects at the existing technological universities.

In view of the marked regional function fulfilled by most ordinary and technological universities, a special sub-committee was charged with the study of the *regional* aspects of the problem.

The most influential factor here is the rapid development of the western region of the country and what is known as the "Randstad Holland", a rectangle of large towns, Amsterdam, Haarlem, Leyden, The Hague, Rotterdam, Gouda, Utrecht, Amersfoort, Hilversum, spreading out to meet each other. This concentration of economic and cultural forces in the west has an engulfing effect on the rest of the country. Within the space of a century the population of the west has risen from 39 % to 48 % of the total population. The other parts of the Netherlands supply only 40 % of the total student population and 80 % of them study in the west, where six of the eleven ordinary and technological universities are to be found, including three of the four State universities. The commissions are of the opinion that an institution of higher education can exert a stimulating influence on its environment, and *vice versa*. In the west of the country the extension of secondary education – with which the development of higher education is closely connected – will keep pace with the growth in the population. In the rest of the country, however, various development plans will lead to a higher degree of urbanization and mean that these areas will have a larger share in secondary education, so that the number of potential students will increase more rapidly than would be expected, if estimates were based solely on the growth in the population. The establishment of courses in centres previously deprived of these will help to stimulate the influx of new categories of student.

Finally, the commissions arrive at the following *proposals for the establishment of new institutions of higher education:*

1. *Founding of a new university in the province of Overysel* (the majority of the commissions suggest the town of Deventer) to open in 1962 with:
   a) *a technological faculty* for study in mechanical engineering, electro-technics and chemical technology.
   b) *law and economics faculties* with facilities for the study of *sociology*.
   c) *pre-intermediate courses* in the pure sciences (mathematics, physics, chemistry).
   With a view to the need for the fullest possible mobilization of the available potential, the establishment of educational facilities in the technological sciences and the pure natural sciences should be given priority The addition of courses in the social sciences will help to absorb the anticipated quantitative growth in this sector. According to estimates, the university in Overysel would have 3,400 students by 1980 and do much to relieve the present pressure on the University of Utrecht.
2. *Founding of a third Technological University* in the vicinity of the North Sea Canal (north-west of Amsterdam) with departments teaching mechanical engineering, electro-technics and chemical technology, to open in 1964. It would not be necessary for this university to provide instruction in the pure natural sciences, since two faculties of mathematics and natural science already exist in Amsterdam nearby.
   On the basis of the estimated need for engineers in 1980, the number of students of the technological sciences will have to be about 15,600 by 1975 and those working in mechanical engineering, electro-technics and chemical technology more than 10,000 altogether. The existing technological universities and the projected new university in Overysel will not be able to absorb this number. The new technological university will have about 2,100 students by 1980. This will relieve the pressure on the University of Amsterdam, while the required relief for the Technological University at Delft will amount by 1980 to about 1,400 students. The possibility of co-operation with the nuclear science centre at Petten is of great significance.
3. *Extension of the Technological University at Eindhoven* in 1960/1961 by additional pure science courses: in mathematics, physics and chemistry, and the introduction there of a bachelor's degree course in the technological sciences.
4. *Extension of the State University at Leyden* by adding a law faculty in 1961 and by the institution of a bachelor degree course of general nature.

5. *The doubling of the dentistry courses at the State University at Groningen* in 1961 and the authorizing of this university to award the degree of engineer as the culmination to the technological courses already being given there.
6. *Extension of the Roman Catholic University at Nymegen* by adding a dentistry course in the medical faculty, in 1966.
7. *Gradual extension of the Netherlands School of Economics at Rotterdam* by adding a *law faculty* (primarily for the science of taxation) and a course in sociology (primarily for administrative science).
8. *Gradual extension of the Roman Catholic School of Economics at Tilburg,* by adding a law faculty (primarily for the science of taxation).

The *total cost of investment* involved in establishing the proposed new universities and extending existing universities is estimated at *412 million Dutch guilders* (approx. £ 40 m.). This estimate is based on the following figures for the *cost per student:*

a) for complete course in mechanical engineering, electro-technics and chemical technology:	D.Fl.	67,500
b) for complete course in theoretical mathematics, physics and chemistry at Eindhoven	„	50,000
c) for pre-intermediate course in mathematics, physics and chemistry at the proposed university in Overysel	„	22,500
d) for complete course in law, economics and sociology	„	15,000

In their concluding remarks the commissions underline the need to see that the extension plans already in preparation and the new measures suggested are carried out according to the timetable indicated, and the urgent necessity of estimating in good time the measures required to attract and train within the universities the future members of the academic corps of teachers. In this respect they advocate the institution of junior professorships.

The survey below, derived from the report, of the estimated numbers of students at existing and prospective institutions of higher education in 1980, compared with the figures for 1959, afford an impression of the effect the proposed measures should have.

	1959	1980
State University at Leyden	4,842	8,000
„ „ „ Groningen	2,796	4,200
„ „ „ Utrecht	5,730	9,750
University of Amsterdam	6,594	9,750
Free (Reformed) University of Amsterdam	2,621	4,500
R.C. University at Nymegen	2,459	5,750
University in Overysel	—	3,400
Technological University at Delft	6,104	9,500
Agricultural University at Wageningen	917	2.000
Neth. School of Economics, Rotterdam	1.556	3,650
R.C. School of Economics, Tilburg	758	2,100
Technological University at Eindhoven	513	3,300
Technological University (North Sea Canal Area)	—	2,100
Total	34,890	68,000

RESEARCH

A Bridge Between Higher Technological Education and Industry

The technical phycics department at the Technological University at Delft is one of the youngest departments there, though one whose growth has been dynamic in character.

The expansion of the teaching corps has, of course, had to keep pace more or less with the department's growth so that the present body of exact knowledge *and* knowledge of its application and the numerous sets of apparata constructed by the graduates now form a storehouse, the main problem facing which is the question how this vast amount of knowledge and know-how can be made to serve industry without damage to the teaching of the subject.

The increasing importance of the rôle played by technical physics in industry has caused the latter to make ever greater demands on both the graduates leaving the department and the teaching staff.

These demands were made partly in the field of fundamental knowledge, in which case the teacher concerned could work out a solution seated at his desk; but very often information was sought in the field of applied science which meant that the use of a laboratory was indispensable, so that the problem immediately arose of having to use staff and premises provided for educational purposes to meet the requirements of industry. The financial side to this formed another, distinct problem too.

The research work performed by students in their last year results in sets of experimental apparata, on a laboratory scale, which are dismantled as soon as the students leaves after graduation. It can happen, of course, that the results obtained with such models are so valuable that it would be worth while to continue the research, on a semi-technical scale, for example, and to interest some industry in what had in the meantime been achieved. But this was not possible, because the teaching side has not been equipped for this purpose nor was it interested in it. A way was found of solving the situation. This was as follows.

A Technical Physics Service T.N.O. and T.H. was set up, the initials T.N.O. standing for the Organization for Applied Scientific Research and T.H. for the Technological University at Delft. By the terms of the act of 1930 the T.N.O. organization is the body responsible for research on behalf of industry so that it was an obvious course to look for support from this body, while the ties existing with the Technological University were so close that it seemed useful to include the initials T.H. in the name as well.

This Technical Physics Service was housed in the technical physics laboratory. This guaranteed close co-operation with this laboratory, and the links joining the two were strengthened still further by the readiness of all the professors working in the technical physics department to hand over all the personal commissions they received from industry to the service and to function in a body as the governors, which means that they form the service's scientific advisory board.

Commissions received from outside, which were formerly entrusted to them, are now carried out by the service therefore, though under the supervision of the professor concerned. Thus industry does not suffer, while the professor is relieved of all manner of tasks which he formerly had to perform himself (negotiations, the writing of the report, the despatch of the account, etc.).

The financial arrangements are now on a sound basis as well, since the Technical Physics Service has its own personnel in the first place, while agreements are arrived at and accounts settled with the Board of Governors of the Technological University regarding the use of premises (in the technical physics laboratory).

Naturally, the professor only accepts those commissions which are of interest to him in connection with his work as a university teacher. Teaching, for that matter, only remains alive and vital, if industry presents it with problems requiring practical solutions. Problems which do not interest the professor concerned can be studied by the service itself; in which case the service bears the responsibility.

It is also possible now for research apparata developed by students, or models which hold some promise for technics but require further elaboration, to undergo this further development. Quite often this leads to finds of such importance that patents are applied for or licences granted to industrial undertakings for the manufacture of the instruments concerned.

The over-all administration is provided for by a supervisory board of four members, two being nominated by the board of governors of the Technological University and two by the Central Organization for Applied Scientific Research.

For the rest, the service has a staff of about 90 assistants and 20 university men. It comprises eight sections covering almost the whole field of the natural sciences, each section having its own director. The technical and commercial management is in the hands of a manager and deputy manager, both of whom are nominated by the Minister of Education, Arts and Sciences, which once again underlines the service's link with the Technological University. The other personnel involved is employed by the T.N.O. organization.

Another extra advantage of accommodation under one roof is that the use of each other's equipment is thereby facilitated. The equipment required by a physics laboratory is costly, and by consulting on either partner's proposed new acquisitions it is possible to arrive at far greater variety in the apparata acquired than would be the case if each had to act alone.

Thus an organization has come into being here which may be termed unique. It has now been at work for fifteen years and has always produced satisfactory results, because, thanks to its structure, it automatically results in advantages for all, without involving a single disadvantage.

H. Alting *

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* Ir Alting is Head of the Technical Physics Service T.N.O. and T.H.

INTERNATIONAL COURSES

International Meeting on Methods and Programme Planning in Agricultural and Home Economics Extension

More than 700 agricultural advisory officers and home economists representing over 60 countries have attended the seven preceding meetings on Methods and Programme Planning in Agricultural and Home Economics Extension organized by the International Agricultural Centre at Wageningen, the Netherlands.

In this period of international co-operation in the field of agriculture and Home Economics the joint study of extension programme building and of efficient extension methods is a necessity.

Considering the scope and character of agricultural and home economics extension, activities in this field should, in our opinion, not be limited to separate regions but be organized on a general international level.

In view of the importance of a world wide approach to extension methodology and encouraged by the experience gained in preceding years the International Agricultural Centre at Wageningen has taken steps to organize an eighth international meeting on this subject, to be held at Wageningen, July 5—29, 1960. (Assemble July 5; Disperse July 29, 1960).

A considerable part of the programme has in the past been devoted to rural home economics, so closely related with agriculture in rural development.

This year again home economics subjects will form an integral part of the programme.

This meeting of a little over 3 weeks in duration is designed both for junior and senior advisory officers and educationalists in agriculture and home economics.

Experts from various countries, including officials of the Food and Agriculture Organization of the United Nations will be invited to deliver lectures.

Ample time will be provided for discussion among participants and with the lecturers by making use of effective discussion techniques. During "work-shop" meetings participants will have an additional opportunity to arrive at a thorough exchange of ideas and experience gained in different countries. "Workshops" which, in particular, will cover programme planning and farm economics, will be led by experts in the respective fields. Visits to agricultural and rural institutes and field trips, covering a large area of the Netherlands, and a decentralized three-day field demonstration period under the personal guidance of district advisory officers and home economists will form an integral part of the programme. During this period groups of three to four participants will be enabled to study and discuss the activities of the Netherlands Advisory Services and Home Economics Organizations and their relationship to allied services of research, vocational teaching, etc., on the spot.

Subjects:

The provisional programme comprises lectures on:

Extension programme building
Extension programmes at the national level
Extension programmes at the regional level
The relative effectiveness of the different extension media
Audiovisual aids in rural extension
The written word in rural extension
Lay leadership in rural extension
Extension staff training
Extension in relation to co-operatives and agricultural credit
Rural youth work
Social aspects of rural extension
Co-operation between agricultural and home economics extension
Evaluation of extension work
Principles of rural extension
Methods of farm economics extension
Relation of research to agricultural extension
Relation of teaching to agricultural extension
Farm productivity campaigns
Relation of vocational teaching to home economics extension
Home economics in countries undergoing rapid development
Home economics extension in problem areas
Relation of research to home economics extension.

Languages:

Papers will be presented in English, French or German, but by making use of a simultaneous interpretation system, participants will be enabled to follow the lectures and take part in discussions in any one of the three languages.

Fee:

Total fees amount to Fl. 780.—. This covers administration fee; board and lodging at Wageningen and during field trips; transport charges during field trips and local visits; programmes, papers and other publications.

Board and Lodging:

Accommodation will be arranged for by the organizing committee. Owing to the difficulty in obtaining adequate hotel accommodation at Wageningen in the summer season, participants will be housed in private homes. Meals will be taken in common at the student's club, which will also serve as a social centre.

Information:

Those planning to participate in the 1960 meeting are invited to communicate with: The Director, International Agricultural Centre, 1, Generaal Foulkesweg, Wageningen - The Netherlands.

International Meeting on Organization and Methods of Plant Protection

As the world population is increasing by about 30 million people a year, it is our duty to intensify our efforts to obtain higher yields; one of the means towards that aim is the control of plant diseases and insect pests. Weeds, diseases and pests are responsible for a loss of a least 20 per cent of the food production of the world. Therefore research in the field of plant protection has become imperative. However it is not sufficient for scientists to know the cause of a disease and its control. The results must be brought to the attention of the farmer, for he is the man who cultivates the crops, and therefore he should know how to deal with pests and diseases.

The spreading of this information is the task of Plant Protection Services and/or Advisory Services. Plant Protection Services also have other duties. These are clearly described in the International Plant Protection Convention laid down by F.A.O. in Rome in 1951.

Article IV of this convention deals with the tasks and duties of a National Organization for Plant Protection.

The main functions of such an organization are to make provisions for:

1. the inspection of plants and plant products on the occurrence of pests and diseases and the control of those pests and diseases.
2. prevention of the dissemination of pests and diseases of plants and plant products across national boundaries.
3. the distribution of information regarding pests and diseases of plants and plant products and the means of their prevention and control.
4. research and investigation in the field of plant protection.

These 4 functions will constitute the main themes of the meeting.

Until now, information on the organization and methods of plant protection has been asked by individual Government officials, advisory officers or research workers. Experience in the Netherlands has revealed that such information is difficult to provide and is bound to be fragmentary. Congresses on the other hand deal almost solely with research findings. There are many persons engaged in the field of plant protection who feel the necessity to discuss organizational problems and exchange practical experience on methods with colleagues from abroad.

By organizing an international meeting of 3—4 weeks the International Agricultural Centre hopes to contribute towards international co-operation and mutual understanding. This meeting will take place at Wageningen, the Netherlands from August 1—26, 1960 (arrive August 1; disperse August 26, 1960). It will be held under the auspices of the Netherlands Ministry of Agriculture and Fisheries. The organization will be in the hands of the International Agricultural Centre at Wageningen.

Experts in the fields of plant protection, advisory work and research on plant diseases and pests have been invited to introduce their special subjects. These lectures will be followed by discussions. By making use of effective discussion techniques ample time will be available for a thorough exchange of ideas and experience among participants. Most subjects will be supplemented by practical demonstrations, either in laboratories or in the field. The plan is to spend some six days on field trips covering a large part of the Netherlands. This will enable participants to get a general view of plant protection in the Netherlands.

The meeting is designed for senior and junior officers of Plant Protection Services, Advisory Services, Experimental and other Research Stations.

Subjects:

The meeting will cover the following subjects:

- Organization of research on plant protection.
- Organization and problems of plant protection advisory services.
- Warning systems and services and their relative importance in advisory work.
- Plant protection laws and regulations.
- Organization and operation of inspection services for agricultural and horticultural crops.
- Organization of the inspection of agricultural and horticultural export products.
- Seed inspection and certification.
- Organization and operation of approval schemes for pesticides.
- Spraying and dusting techniques.
- Agricultural aviation and its possibilities for plant protection.
- The possibilities and advantages of combined biological and chemical control of insect pests.
- Breeding and distribution of resistant varieties of crops.

Languages:

Papers will be presented in English, French or German, but by making use of a simultaneous interpretation system, participants will be enabled to follow the lectures and take part in discussions in any one of the three languages.

Fee:

Total fees will amount to Fl. 800.
This covers: administration fee; board and lodging at Wageningen and during field trips; transport charges during field trips and local visits; programmes, papers and similar publications.
Hotel accommodation will be arranged for by the organizing committee.

Information:

Those planning to participate in the plant protection meeting are invited to communicate with: The Director, International Agricultural Centre, 1, Generaal Foulkesweg, Wageningen, The Netherlands.

FOREIGN STUDENTS IN THE NETHERLANDS

Foreign students per country and per faculty

Country Nationality	Theology	Law	Medicine	Dentistry	Math. and Physics	Arts	Veterinary Science	Social Science	Geography	Psychology	Pedagogy	Technology	Agriculture
Albania	—	—	—	—	1	—	—	—	—	—	—	—	—
Argentine	—	—	—	—	—	—	—	—	—	—	—	—	—
Australia	—	—	—	—	—	1	—	—	—	—	—	1	—
Austria	1	2	2	—	2	1	—	—	—	—	—	2	—
Belgium	2	2	13	1	3	8	2	3	—	2	—	13	11
Brazil	—	—	—	—	1	—	—	—	—	—	—	—	—
Bulgaria	—	—	4	—	—	—	—	—	—	—	—	—	11
Burma	—	—	—	—	—	—	—	—	—	—	—	3	—
Canada	4	—	1	—	—	1	—	—	—	—	—	1	—
China	—	—	—	1	—	—	—	—	—	—	—	3	—
Cuba	—	—	—	—	—	—	—	—	—	—	—	1	—
Czechoslavakia	—	—	1	—	—	1	—	—	—	—	—	3	—
Denmark	—	—	1	—	—	—	—	—	—	—	—	—	11
Finland	—	—	—	—	—	—	—	—	—	—	—	1	—
France	—	—	1	—	1	4	—	—	—	2	—	4	—
Germany	9	6	5	1	12	13	—	2	3	3	—	15	11
Greece	—	—	2	—	1	—	—	—	—	—	—	1	—
Hungary	6	3	18	2	15	5	6	5	—	3	—	50	6
Iceland	—	—	—	—	—	—	—	—	—	—	—	1	—
India	—	—	7	—	2	—	—	—	—	—	—	4	4
Indonesia	5	9	117	7	44	13	1	14	3	17	1	161	6
Iran	—	—	1	—	—	1	—	—	—	1	—	—	—
Iraq	—	—	—	—	—	—	—	—	—	—	—	2	—
Israel	—	—	6	—	—	—	9	—	—	—	—	6	—
Italy	—	1	2	1	—	2	—	—	—	—	—	1	—
Jordan	—	—	—	—	—	—	—	—	—	—	—	1	—
Korea	1	—	—	—	—	—	—	—	—	—	—	2	—
Latvia	—	—	—	—	2	1	—	—	—	—	—	—	—
Liberia	—	—	1	—	—	—	—	—	—	—	—	—	—
Luxemburg	—	—	—	—	1	1	—	—	—	—	—	1	1
Nigeria	—	—	—	—	—	—	—	—	—	—	—	2	—
Norway	—	—	55	—	—	1	—	—	—	—	—	1	—
Pakistan	—	—	1	—	—	—	—	—	—	—	—	1	—
Poland	—	—	2	—	2	4	—	—	—	—	—	2	—
Sudan	—	—	—	—	—	—	—	—	—	—	—	—	—
S. Africa	16	5	5	—	4	12	—	—	—	1	2	1	—
Spain	—	—	—	—	2	1	—	—	—	—	1	1	—
Sweden	—	—	3	—	—	1	1	—	—	—	—	—	—
Switzerland	2	1	4	—	—	3	—	—	—	—	—	1	—
Turkey	—	—	—	—	—	—	—	—	—	1	1	1	—
United Kingdom	1	3	1	—	4	3	—	1	1	—	—	5	—
U.R.A.	—	—	1	—	2	—	—	—	—	—	—	5	4
U.S.A.	15	3	104	—	9	13	—	1	—	1	—	8	—
Venezuela	—	—	—	—	1	—	—	—	—	—	—	1	—
Yugoslavia	—	—	2	—	1	1	—	1	—	—	—	5	—
Stateless	—	5	8	1	7	2	—	1	—	3	—	10	—
Total	62	40	368	14	117	93	19	28	7	34	4	321	25

IN THE ACADEMIC YEAR 1958—1959

Foreign students per country and per university

Total 1958/59	Total 1957/58	Leyden	Utrecht	Groningen	Amsterdam	Amsterdam Free Ref. Univ.	Nijmegen	Delft	Eindhoven	Wageningen	Rotterdam	Tilburg	Country Nationality
1	—	—	—	—	—	1	—	—	—	—	—	—	Albania
—	1	—	—	—	—	—	—	—	—	—	—	—	Argentine
2	2	—	—	—	1	—	—	1	—	—	—	—	Australia
15	16	4	2	—	4	—	—	2	—	—	1	2	Austria
54	53	3	10	—	7	2	14	10	3	1	2	2	Belgium
1	—	—	1	—	—	—	—	—	—	—	—	—	Brazil
5	6	—	2	1	1	—	—	—	—	1	—	—	Bulgaria
3	—	—	—	—	—	—	—	3	—	—	—	—	Burma
7	3	2	—	—	—	4	—	1	—	—	—	—	Canada
4	1	—	1	—	—	—	—	3	—	—	—	—	China
1	1	—	—	—	—	—	—	1	—	—	—	—	Cuba
7	3	1	—	1	—	—	1	3	—	—	—	1	Czechoslavakia
2	3	—	—	—	1	—	—	—	—	1	—	—	Denmark
1	1	—	—	—	—	—	—	1	—	—	—	—	Finland
13	10	1	1	—	6	—	1	4	—	—	—	—	France
84	73	16	14	4	17	8	2	14	1	1	7	—	Germany
6	3	1	—	1	2	—	—	1	—	—	1	—	Greece
129	116	13	20	8	6	9	10	46	4	6	3	4	Hungary
1	2	—	—	—	—	—	—	1	—	—	—	—	Iceland
18	7	—	—	—	3	—	6	4	—	4	1	—	India
499	629	65	31	7	143	38	10	158	3	6	37	1	Indonesia
3	2	1	—	1	—	1	—	—	—	—	—	—	Iran
2	—	—	—	—	—	—	—	2	—	—	—	—	Iraq
22	19	—	9	—	6	—	—	6	—	—	1	—	Israel
8	9	2	2	1	1	—	—	1	—	—	1	—	Italy
1	1	—	—	—	—	—	—	1	—	—	—	—	Jordan
4	1	—	—	—	1	1	—	2	—	—	—	—	Korea
3	2	1	1	1	—	—	—	—	—	—	—	—	Latvia
1	—	—	—	—	1	—	—	—	—	—	—	—	Liberia
4	4	—	—	—	2	—	—	1	—	1	—	—	Luxemburg
2	—	—	—	—	—	—	—	2	—	—	—	—	Nigeria
57	52	2	20	33	1	—	—	1	—	—	—	—	Norway
2	—	—	—	—	1	—	—	1	—	—	—	—	Pakistan
10	5	—	1	1	1	—	5	2	—	—	—	—	Poland
—	1	—	—	—	—	—	—	—	—	—	—	—	Sudan
47	49	7	5	5	12	17	—	1	—	—	—	—	S. Africa
5	4	—	1	—	3	—	—	1	—	—	—	—	Spain
5	4	1	1	2	1	—	—	—	—	—	—	—	Sweden
13	12	5	—	—	4	2	—	1	—	—	1	—	Switzerland
2	1	1	—	—	—	—	—	1	—	—	—	—	Turkey
19	22	8	2	—	3	—	1	4	1	—	—	—	United Kingdom
12	8	1	—	—	1	—	1	5	—	4	—	—	U.R.A.
160	168	64	11	4	51	16	2	8	—	—	3	1	U.S.A.
2	1	—	—	1	—	—	—	1	—	—	—	—	Venezuela
12	4	2	—	2	1	—	—	3	2	—	2	—	Yugoslavia
45	65	5	1	1	26	1	—	10	—	—	1	—	Stateless
1294	1364	206	136	74	307	100	53	307	14	25	61	11	Total

INTERNATIONAL SCIENTIFIC MEETINGS

6th International Congress on Gastro-Enterology

The Association of National European and Mediterranean Societies of Gastro-Enterology and the Society of Netherlands Gastro-Enterologists are organizing a 6th International Congress on Gastro-Enterology, to be held from April 20 to 24, 1960 at Leyden and Noordwijk-on-Sea, the Netherlands.

Information: Dr. C. Schreuder, Secretary-General, 6th International Congress on Gastro-Enterology, 16, Lange Voorhout, The Hague.

2nd European Symposium on Chemical Reaction Engineering

The European Federation of Chemical Engineering, in collaboration with the Royal Netherlands Chemical Association, and the Royal Institute of Engineers will be organizing a 2nd European Symposium on Chemical Reaction Engineering, to be held at the Royal Tropical Institute, Amsterdam, the Netherlands, from April 26 to 28, 1960.

Information: P. J. Hoftijzer, Centraal Laboratorium der Staatsmijnen in Limburg, Geleen, Limburg, The Netherlands.

8th International Automobile Technical Congress

The International Federation of Automobile Engineers' and Technicians' Associations will be organizing an 8th International Automobile Technical Congress in The Hague, The Netherlands, from May 9 to 13, 1960, in collaboration with the Royal Netherlands Institute of Engineers.

Information: Ir. J. Ligthart, 14, Burgemeester de Monchyplein, The Hague, The Netherlands.

4th International Symposium on Reactivity of Solids

The Royal Netherlands Chemical Society, the Netherlands Physical Society and the Netherlands Ceramic Society invite participants to the 4th International Symposium on the Reactivity of Solids, to be held from May 30 to June 4, 1960 at Amsterdam, The Netherlands. The symposium is being sponsored by the International Union of Pure and Applied Chemistry and the International Union of Pure and Applied Physics (IUPAP). It will be held for the purpose of promoting the exchange of knowledge between the many different fields of science and technology in which reactivity problems are important. It will do so by stressing the mechanism and kinetics of reactions of solids, accentuating the factors influencing reactivity, and discussing the technical application of reactivity studies.

Information: Ir. G. van Gijn, Technological University, 2, Insulindelaan, Eindhoven, The Netherlands.

International Conference on Many-Particle Problems

The Netherlands Physics Society will be organizing an International Conference on Many-Particle Problems from June 13 to June 18, 1960 at Utrecht, The Netherlands, under the auspices of the International Union of Pure and Applied Physics (IUPAP) and its Commission on Thermodynamics and Statistical Mechanics. A meeting of the Commission will be held during the Conference.
Participation will be by invitation only.

Information: Professor L. C. P. van Hove, Institute of Theoretical Physics, State University, Utrecht, The Netherlands.

7th Congress on Coastal Engineering

Organized by the Department of Roads and Communications in co-operation with the Council on Wave Research is to be held at The Hague from August 22 to 27, 1960.
Information: Ir. J. B. Schijf, 25, Koningskade, The Hague.

European Regional Conference on Electron-Microscopy

The Netherlands Society of Electron-Microscopy will be organizing a European Regional Conference on Electron-Microscopy at The Hague and Delft, The Netherlands, from August 28 to September 3, 1960.

The conference will be concerned with the physics and technique of the electron microscope, image formation, ion microscopy, pretaration techniques, the results of ultrastructure research in biology, medicine, chemistry and metallography.

Information: Dr. A. L. Houwink, 14, Burgemeester de Monchyplein, The Hague, The Netherlands.

4th International Congress on Criminology

The International Society of Criminology will be organizing a 4th International Congress on Criminology. The main theme for discussion will be: The Psycho-pathological Aspects of Criminal Behaviour.

Information: Mr. E. A. M. Lamers, 14, Burgemeester de Monchyplein, The Hague, The Netherlands.

International Psychoanalytical Conference

An international psycho-analytical conference, open to all Freudian psychoanalysts, is to be held at Amsterdam, September 5—8, 1960.
The conference will be organized by the Dutch Psychoanalytical Society in cooperation with the Societé Française de Psychanalyse and will be devoted to the subject of female sexuality.

Information: Dr. L. N. J. Kamp, Secretary, International Psychoanalytical Conference, 6, Pelmolenplantsoen, Utrecht.

ESOMAR Congress

of the European Society for Opinion Surveys and Market Research is to be held at The Hague from September 12 to 17, 1960.
Information: 14, Burgemeester de Monchyplein, The Hague.

Annual conference of the IAML

The annual conference of the International Association of Music Libraries (IAML) will be held at Amsterdam from September 12 to 17, 1960 in the building of the DONEMUS Foundation.
The conference is being organized by the said Foundation in co-operation with the Musical Library at Amsterdam.
The IAML is an international organization grouping national associations, musical libraries, librarians and editors of music in 37 countries. 23 of its members are from the Netherlands. The General Secretariate is established in the Netherlands.
Information: Stichting DONEMUS, 51, Jacob Obrechtstraat, Amsterdam.

MISCELLANEOUS

Professor Heimans' Farewell Address: A Defence of Hugo de Vries

On December 13 last, in the packed auditorium of the University of Amsterdam, Professor J. Heimans brought his work as professor of biology and genetics to a conclusion with a remarkable farewell lecture, which was heard by many authorities, friends and pupils of his.

Professor Heimans is the son of a well known Dutch naturalist, Eduard Heimans, who worked frequently in co-operation with the biologist and zoologist, Dr. J. C. Thijsse, to popularize biology, among other things by the publication of many popular books on the subject.

Professor Heimans has been connected with the University of Amsterdam for almost 50 years. He began work in 1911 as temporary assistant in the Botanical Gardens, being admitted to the university as a private tutor for plant geography in 1938, his appointment to a professorial chair following in 1946.

The 70 year old professor devoted his farewell address to a glowing defence of his own master, the late Professor Hugo de Vries, who died in 1935 and who was the founder of the mutation theory, which explains changes in types in living things by the abrupt occurrence of hereditary typal characteristics.

Professor Heimans is of the opinion that Hugo de Vries has been the victim of a misunderstanding as a result of which his scientific work relating, among other things, to the problem of heredity has been interpreted as merely an embroidering on discoveries already made by Darwin and Mendel. According to Professor Heimans, Hugo de Vries did not give sufficient emphasis to his original views and propositions (e.g., concerning reproductive cells as separate carriers of constant hereditary factors), precisely because, out of admiration for Darwin, he wanted to show how closely his ideals agreed with Darwin's. The cross-breeding theories of Mendel, based on purely experimental processes, were provided, later on, with scientific foundations by de Vries, whose work has been unjustly eclipsed by that of Mendel. In Professor Heimans' view, Mendel could be termed a forerunner of de Vries.

Death of Professor Huber

Professor Max Huber-Escher died on December 28 last in Zürich, Switzerland, at the age of 85. Though Swiss, Professor Huber lived for many years in the Netherlands as a member and as president of the Permanent International Court of Justice and forged many ties of friendship and respect in our country. This and the honorary doctorate conferred upon him by the Free (Reformed) University in Amsterdam entitle him to mention in this Dutch chronicle.

From 1902 to 1921, Dr. Huber was professor in Swiss constitutional and international law in the University of Zürich. He was a member of the Swiss delegation to the second Hague Peace Conference in 1907. From 1921 on he was a member of the Permanent Court, being appointed president of the Court in 1925, as successor to a Dutch colleague, Loder. The Free (Reformed) University awarded him an honorary doctorate in 1950.

Bakhuis Roozeboom Medal for Dr. Meijering

On January 30 last, at a ceremony in the Natural Science Department of the Netherlands Royal Academy at Amsterdam, the gold Bakhuis Roozeboom Medal was handed to Dr. J. L. Meijering, scientific advisor in the Philips Factories' Physics Laboratory at Eindhoven.

This medal is awarded every four or five years to a research worker, either at home or abroad, who has made a highly important contribution through his work to knowledge of the phase theory.

Bakhuis Roozeboom did much to make this branch of science flourish. It is concerned with the experimental theoretical study of conditions of temperature, pressure and composition, in which various phases in a multi-material system can exist side by side. The medal has already been awarded eight times: to Bakhuis Roozeboom's pupils, Schreinemakers, Van Laar and Scheffer, to Hume Rothery (England), Bridgman (U.S.A.), Day (U.S.A.), Bowen (U.S.A.) and Tammann (Germany). Dr. Meyering is a leading figure among research workers at present engaged in this field.

In a series of important research projects he has, basing his work *a priori* on thermodynamic principles and proceeding from certain assumptions concerning the course of internal energy and entropy as a function of the composition of the phases, deduced the equilibria which can occur in systems consisting of three or more components.

Building further on this, he has made forecasts regarding situations to be expected, the accuracy of which forecasts was confirmed by later experimental research. In addition, Meijering has carried out calculations regarding the number and the form of the crystallites in a crystalizing solid, dependent upon the manner of origin and growth of the crystal germs.

In co-operation with Druyvesteyn, he did important work on the internal oxydation of metals, in which complicated multi-phase systems occur in the presence of special mechanical properties, such as great hardness. Meijering has published a great deal of material on this and related subjects.

Professor van Itterbeek Returns to Belgium after 10-year stay in the Netherlands

After a term of office of 10 years as professor of experimental physics in the University of Leyden, Professor A. F. van Itterbeek has taken leave of Leyden to return to his mother country.

Born in Aalst, Professor van Itterbeek studied mathematics and physics at the University of Ghent, where he took his doctor's degree with a dissertation on "Research on High-Frequency Electric Rotary Fields". He became a university lecturer in 1932 and professor of physics in the R.C. University of Louvain in 1935.

His first contact with Leyden dates from long ago. From 1928 to 1931 he worked as an assistant in the Kamerlingh Onnes Laboratory there and his interest in low temperatures dates from that period. He was the founder, and since 1946 has been the president, of the Belgian Inter-University Centre for the Science and Technical Study of Cooling Techniques and founder and member of the board of the Institute of Low Temperatures and Technical Physics at Louvain. He has published numerous articles on the subject of low temperatures.

In 1949 he was appointed to a chair in Leyden, taking up this appointment in January 1950 with an inaugural address on the training of the student in physics in the low temperature field. On his departure, he received the University's gold medal, as a mark of appreciation for the scientific work he had performed during his period of office at the Kamerlingh Onnes Laboratory. Large numbers of colleagues and pupils remain bound to Professor van Itterbeek by ties of affection and respect.

Japanese-Dutch Relations 350 years old

Relations between the Netherlands and Japan have existed for 350 years. It was in 1609 that the Dutch first obtained a "trade passport" entitling their ships to sail to Japan. This fact has occasioned the organization of an anniversary exhibition in the Prince Hendrik Maritime Museum in Rotterdam, which was opened on Decembber 21 last.

During the period (1641—1854) that Dutchmen were the only Europeans to have access to Japan, being permitted to have their own trading settlement on the small island of Deshima in Nagasaki Bay, both cultures, highly disparate as they were, exerted an influence on each other, and the exhibition provides a picture of this.

Professor F. Vos, who teaches Japanese and Korean at the University of Leyden and who was one of the organizers of the exhibition, pointed out the great influence the Dutch have exerted in Japan. In actual fact, they laid the foundations for the development of the country by the Japanese themselves, once Japan lay open to the world.

Among the fields of science in which Dutch learning was influential are, in the first place, medicine, and also astronomy, geography, physics, chemistry, mathematics and the art of war. A number of the books on display illustrate this: a Dutch guide for the treatment of internal diseases in Japanese, a Dutch grammar, a work on western modes of warfare, etc.

Professor Ketelaar Off to the United States

Dr. J. J. A. Ketelaar, professor of chemistry in the University of Amsterdam, will be giving a number of lectures at American Universities on the direct conversion of energy released by combustion into electricity, a subject under study at the Central Organization for Applied Scientific Research in the Netherlands.

Professor Ketelaar has had a large share in the development of a galvanic fuel cell, into which many of his original ideas have gone. He will also give introductory lectures on the infra-red spectroscopy of compressed gases and crystals.

Netherlands Research on a Caucasian Language

Dr. C. L. Ebeling, professor of Slav language and literature in the University of Amsterdam, has made a seven-week study of Avar, one of the thirty languages spoken in Daghestan, the autonomous republic in the northern Caucasus, having been commissioned to perform this inquiry by the Netherlands Organization for Pure Research. In this mountainous country villages lie close together, yet their populations cannot understand each other, since various languages are spoken, while Russian is neither spoken nor understood. Professor Ebeling is now planning to compile a grammar and phonetics of Avar, one of the languages most used in the area. This has not yet been done in Russia itself.

Honorary Doctorate at Louvain for Professor A. G. Brom

On November 17 last, the R.C. University at Louvain, Belgium, conferred honorary degrees in medicine on two foreign cardiologists, Professor R. Gross of Boston and Professor A. G. Brom, professor of thoracic surgery in the University of Leyden. The respective professors introducing them were Professor Van Campenhout and Professor Joossens, while the diplomas and gowns were handed over by the Rector Magnificus, Monsignor Van Waeyenberg.

The History of Korean Culture

The Rockefeller Foundation in New York has granted a substantial subsidy to Dr. F. Vos, professor of Japanese and Korean language and literature in the University of Leyden, to enable him to write a work on the history of Korean culture.

Professor Vos will be going to Korea and Japan this year to collect material for this book.

Chemistry Fund Prize for Professor Arens

The Netherlands Chemistry Fund Prize was awarded last November at a special meeting of the Natural Science Department of the Royal Netherlands Academy of Sciences to Dr. J. F. Arens, professor of organic chemistry in the University of Groningen.

The "Nederlands Fonds der Chemie" Foundation was set up in accordance with the terms of the will of the late Professor A. F. Holleman, who had been a member of the Academy from 1903 to 1953. The Fund is designed to award a prize once every five years, on the anniversary of Professor Holleman's death, to a Dutchman who, in the preceding five years, has performed an outstanding piece of pure or technological research in the field of chemistry.

The prize has been awarded to Professor Arens for his research on acetylene derivatives and the application of these in organic chemical syntheses.

Professor of Library Science

The Netherlands Society of Librarians was recently authorized to establish a special chair of library science in the Arts Faculty at the University of Amsterdam and to this chair it has now appointed Dr. L. Brummel, Director of the Royal Library at The Hague. We published an article on the Royal Library by Dr. Brummel in a recent number of this Bulletin (Vol. III, No. 3).

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BASIC DATA ON INTERNATIONAL COURSES OFFERED IN THE NETHERLANDS[1]

(see also the "International Courses" Section in this Bulletin)

Institute of Social Studies

Information: The Rector, Institute of Social Studies, 27, Molenstraat, The Hague.

COURSES OFFERED:

a. Two-year Course in the Social Sciences. The study of social change and economic development in the widest sense. The course leads to the degree of Master of Social Sciences.
REQUIREMENTS FOR ADMISSION: Advanced academic standing in one of the social sciences.
NEXT COURSE STARTING: September 1960. Closing date for applications: June 1, 1960.[2]

b. Seven-month Advanced Diploma Course in Social Welfare Policy.
REQUIREMENTS FOR ADMISSION: Practical experience in social work, preferably at the teaching and public service level.
NEXT COURSE STARTING: September 1960. Closing date for applications: June 1, 1960[2].

c. Four-month Course in Comprehensive Planning.
REQUIREMENTS FOR ADMISSION: Graduate standing in social sciences, engineering, architecture or agriculture, and preferably broad experience in one of the various fields of planning.
NEXT COURSE STARTING: September 1960. Closing date for applications: June 1, 1960[2].

d. Six-month Advanced Diploma Course in Public Administration.
REQUIREMENTS FOR ADMISSION: Advanced academic status, and broad experience in the public service or as a member of the staff in institutes of public administration.
NEXT COURSE STARTING: January 1961. Closing date for applications: October 1, 1960[2].

e. Six-month Advanced Diploma Course in Economic Planning and Accounting.
REQUIREMENTS FOR ADMISSION: Advanced academic status and/or experience in planning, national accounting and statistics.
NEXT COURSE STARTING: January 1961. Closing date for applications: October 1, 1960[2].

Technological University at Delft — Netherlands Universities Foundation for International Co-operation

Information: Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.

COURSE OFFERED:

International Course in Hydraulic Engineering. Three branches of study:
1. Tidal and coastal engineering;
2. Reclamation;
3. Rivers and navigation works.

The course lasts eleven months and leads to a diploma.

REQUIREMENTS FOR ADMISSION: a degree in engineering of a recognized institution of higher learning.

NEXT COURSE STARTING: October 1960 (at Delft).

Technological University at Delft - Netherlands Universities Foundation for International Co-operation

with the assistance of the Organization for European Economic Co-operation, and the World Health Organization.

Information: Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.

COURSE OFFERED: European Course in Sanitary Engineering; dealing with the struggle with water pollution in densely populated regions.

REQUIREMENTS FOR ADMISSION: A university degree in civil engineering or a related branch of study, and some practical experience in civil engineering.

The numeral clausus for admission has been fixed at 20 participants.

COURSE STARTING: October, 1960.

Netherlands Universities Foundation for International Co-operation

INFORMATION: NUFFIC, 27, Molenstraat, The Hague.

COURSE OFFERED:

1960 NUFFIC International Summer Course in Science – "Present Problems Concerning the Structure and Evolution of the Galactic System", to be held at Nyenrode Castle, near Utrecht, the Netherlands.

REQUIREMENTS FOR ADMISSION: graduate status in astronomy with research experience.

NEXT COURSE: August 12–31, 1960.

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[1] Courses are given in English only, unless otherwise mentioned.
[2] For Indian Citizens application will close one month earlier.

State University at Leyden — Netherlands Universities Foundation For International Co-operation

Information: Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.

COURSE OFFERED:

Summer Course of the Combined Netherlands Universities.
Subject: Europe and the Netherlands.
REQUIREMENTS FOR ADMISSION: Students or graduates of an institute of higher education,
NEXT COURSE: July 1960.

Research Institute for Management Science — Netherlands Universities Foundation for International Co-operation

Information: Research Institute for Management Science, 76, Nieuwe Laan – Delft.

COURSE OFFERED:

International Course on Small-Scale Industries. Theoretical and practical training in investigating and solving the specific problems of small-scale industries, and in finding a methodology which can be applied to the establishment of new industries. Successful attendance of the course leads to a diploma.
REQUIREMENTS FOR ADMISSION: B.Sc. or M.Sc. in engineering or equivalent degree of recognized universities.

NEXT COURSE: May 1960 until end of October 1960.

International Training Centre for Aerial Survey

Information: The Dean, International Training Centre for Aerial Survey, 3, Kanaalweg, Delft.

COURSES OFFERED:

a. Photogrammetry, including cartography, topography and theory of errors;

b. Photogeology;

c. Use of air photographs for soil survey and other agricultural purposes;

d. The same for forestry and other sylvicultural purposes;

e. Air photography and survey navigation.
Lectures and instruction are given in English, French or German.
Courses are adapted to individual needs, and may therefore vary from some months to two years.
REQUIREMENTS FOR ADMISSION: Dependent upon the individual student's programme of study.
NEXT COURSE STARTING: September 1960.

Roman Catholic University at Nymegen

Information: Faculty of Theology, 13, Wilhelminasingel, Nymegen.

COURSE OFFERED:

"Theological Week," July, 1960.

Institute of Oriental Studies, Leyden

Information: The Secretary, Institute of Oriental Studies, 61, Rapenburg, Leyden.

COURSES OFFERED:

Language and culture of Indonesia and Malaya, the Arabian Countries, Japan, China.

REQUIREMENTS FOR ADMISSION: Candidates must be qualified for university study in their own country.

NEXT COURSES STARTING: October 1960 (duration 3 or 7 months).

The Hague Academy of International Law

(Founded in 1923 with aid from the Carnegie Endowment).

Information: The Secretariat, The Hague Academy of International Law, Peace Palace, The Hague.

COURSES OFFERED:

a. 31st Summer Session, 1960 (consisting of two periods). Lectures on international law in English and French are given in both periods. At the end of each period students admitted to the course sit for examination, which leads in the case of a pass to the award of a diploma.
REQUIREMENTS FOR ADMISSION: Study and/or practical experience in international law; university professors and students, civil servants, judges, lawyers, diplomatic, consular and international officers.
NEXT COURSE: 1st period: July 11–29, 1960; 2nd period: August 1–19, 1960.

b. 4th Session of the Centre of Studies and Research in International Law and International Relations, August 23–October 2. During this session 30 specially selected scholars will be dealing with case-studies in international law.
Attendants of the course will be divided into an English-speaking and a French-speaking group, each with its own Director of Studies.
REQUIREMENTS FOR ADMISSION: advanced academic degree, such as the Academy's diploma, or proof of at least three years' actual practice in international affairs.

Netherlands Universities Foundation for International Co-operation

Information: NUFFIC, 27, Molenstraat, The Hague.

COURSE OFFERED:

"Survey of the Netherlands" — introductory courses on the Netherlands, lasting about one week.

REQUIREMENTS FOR ADMISSION: usual requirements for university study.

NEXT COURSE: courses will be given during summer months, upon request, for groups of at least 15 students.

Bouwcentrum (Building Centre)

Information: Bouwcentrum, P.O. Box 299, Rotterdam.

COURSE OFFERED:

International Course on Building – in co-operation with the Central Organization for Applied Scientific Research in the Netherlands, TNO, and the International Federation of Housing and Town Planning. The course is on the graduate level and lasts six months. Its object is to present a systematic basis for the treatment of the problems encountered in the building industry and to suggest a number of practical methods for tackling these problems.

REQUIREMENTS FOR ADMISSION: B.A., B.Sc. or equivalent degree of recognized universities or colleges. Applicants must, in their own countries, have a task concerned with building.

NEXT COURSE STARTING: October 1960.

The Philips International Institute of Technological Studies

Information: Director of Studies, Philips International Institute, Eindhoven.

COURSES OFFERED:

a. Individual, theoretical and experimental curricula on any subject within the range of Philips' activities; for instance, electronics and applications thereof, X-rays, light and lighting, etc.
b. Three-month course of lectures on basic electronics (October–December).
c. Three-month advanced-level course of lectures. The main subject of this course may differ from year to year but will generally be related to some form of applied electronics.

Teaching language is English. Nominal duration of a complete period of study is one year.
REQUIREMENT FOR ADMISSION: a graduate science or engineering degree.

Next courses: In view of the individual character of the study, students may enter upon their course at any date; the courses mentioned will, however, usually start in October and February.

State University at Groningen Audiology Institute

The second course in Paedo-Audiology, which was announced for the autumn of 1960 in this bulletin's last issue, Vol. III, nr. 4, has been postponed until June 1961. Further particulars will be given as soon as a definite date has been fixed.

International Agricultural Centre at Wageningen.

Information: Director, International Agricultural Centre, 1, Generaal Foulkesweg, Wageningen.

COURSES OFFERED:

a. Research and specialization facilities in special branches of agricultural science, after completion of which a certificate is awarded. Training is adapted to individual needs and may vary from 3 to 12 months.

   REQUIREMENTS FOR ADMISSION: in general, M. Sc. or equivalent degree of recognized universities or colleges.

b. International meeting on Methods and Programme Planning in Agricultural and Home Economics Extension
   July 5–29. 1960.

   Open to advisory Officers and Educationalists in Agricultural and Home Economics.

   Languages: English, French, German.

   Fee: f 780.—. This amount includes, tuiton fee; board and lodging at Wageningen and during field trips; transport charges during field trip and local visits; programmes, papers and other publications.

   Participation restricted to 100 participants.

   Applications before June 1, 1960.

c. International meeting on the Organization of Plant Protection. August 1–26, 1960.

   Open to Officers of Plant Protection Services, Advisory Services, Experimental and Research Station.

   Languages: English, French and German.

Fee: f 800.—. This amount includes, tuition fee; board and lodging in hotels at Wageningen and during field trips; transport charges during field trips and local visits; programmes, papers and other publications.

Applications before July 1, 1960.

Institute for Atomic Sciences in Agriculture (I.T.A.L.), Wageningen

Information: Dr. D. de Zeeuw, Institute for Atomic Sciences in Agriculture, 32 D, Professor Ritzema Bosweg, Wageningen.

COURSES OFFERED: Four weeks' postgraduate course on uses and applications of radio-isotopes in biology and agriculture.

REQUIREMENTS FOR ADMISSION: advanced academic status in the fields of biology or agricultural science.

NEXT COURSE: February 1–26, 1960.
Some 3 courses will be given each year.

The Netherlands Institute for the History of Art

Information: The Director, Rijksbureau voor Kunsthistorische Documentatie, Korte Vijverberg 7, The Hague.

COURSE OFFERED: Summer Course on Dutch and Flemish Art. Lectures and excursions to the great art centres and other places of interest to art historians.

REQUIREMENTS FOR ADMISSION: Applicants should be students of art history, art historians and those having enjoyed an education in art history. A knowledge of the English and French language is required.

COST OF PARTICIPATION: 350 Dutch guilders (approx. £ 33 or $ 100) including accommodation, meals and excursions.

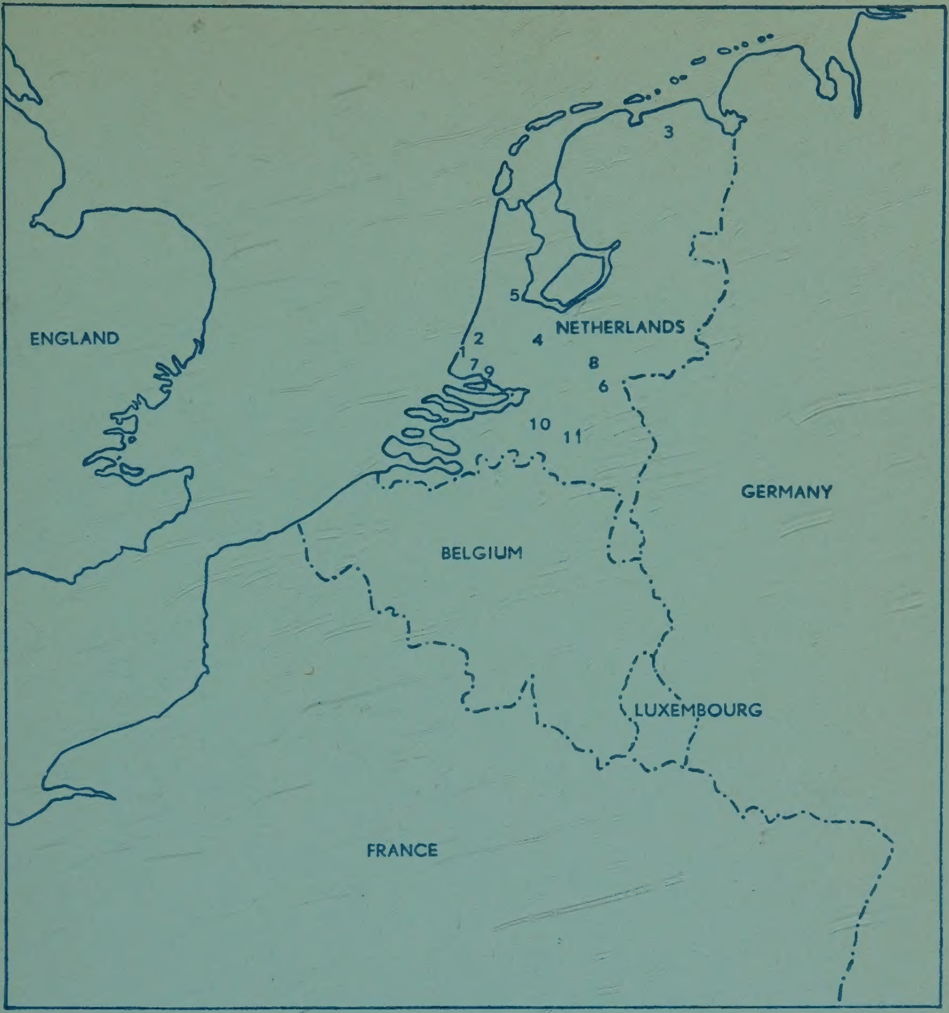
NEXT COURSE: July 12–August 1, 1960.

SCHOLARSHIPS AND FELLOWSHIPS FOR FOREIGN STUDENTS, TENABLE IN THE NETHERLANDS

Institute of Social Studies

Scholarships (Ford Foundation Grant) for Four-month Course in Comprehensive Planning.

In the notice in the December 1959 number (Vol. III, No. 4) page 40, it was stated that "candidates must have broad experience in physical planning". This should have read: "Broad experience in one of the various fields of planning".



1 = The Hague; 2 = Leyden; 3 = Groningen; 4 = Utrecht; 5 = Amsterdam; 6 = Nymegen; 7 = Delft; 8 = Wageningen; 9 = Rotterdam; 10 = Tilburg; 11 = Eindhoven.

The following institutions of higher education participate in the Netherlands Universities Foundation for International Co-operation:

State University at Leyden
State University at Groningen
State University at Utrecht
University of Amsterdam
Free (Reformed) University of Amsterdam
Roman Catholic University at Nymegen
Technological University at Delft
Agricultural University at Wageningen
Netherlands School of Economics at Rotterdam
Roman Catholic School of Economics at Tilburg
Technological University at Eindhoven

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